



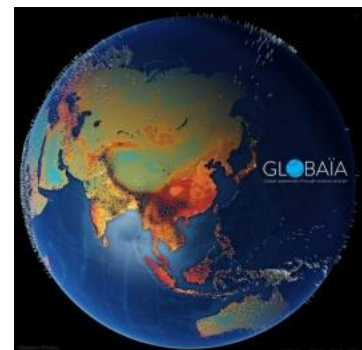
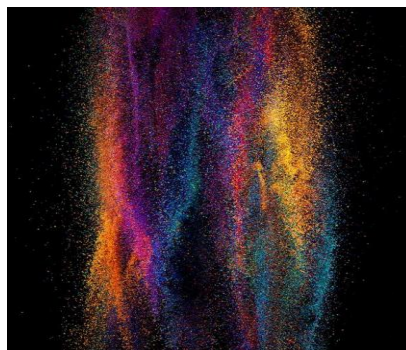
# THE ART OF DATA

## OVERVIEW

This activity challenges students to produce “data art.” Students may choose to create visual art and/or music based on ORCA Kilroy temperature data.

There is tremendous value in creating a work of art that serves to enhance the comprehension of the viewer/listener about how temperature patterns are influenced by both the sun and the tides. Utilizing art as a means to share data allows the viewers and/or listeners to engage and find personal meaning in a sea of information quickly and easily.

Students will access ORCA's Kilroy Data (<http://api.kilroydata.org/public/>) and choose a temperature data set to communicate through data art.



## TOPICS

Art, design, science, technology, temperature, real-time data, visualization of scientific data

**AUDIENCE AND SETTING** Middle school students to adult learners.

Possible settings include science, technology, art and math classrooms.

**DURATION** Two to three 45-minute class periods or may be completed as a take-home assignment

## **OBJECTIVES**

- Integrate art with science and technology to convert scientific data into an acoustic and/or visual form
- Differentiate between visual and acoustic art and analyze the similarities between the two
- Identify benefits of utilizing art and science in conjunction.
- Utilize Art as a means to convey scientific data
- Use, interpret and explore data sets
- Promote student engagement and foster creativity
- Reason, comprehend and explore temperature data trends in the Indian River Lagoon
- Create data art

## **GUIDING QUESTION**

- What are ways in which scientists or artists can make data easier for the general public to understand?

## **KEY TERMS**

**Data/Information art** includes many art forms to convey data to viewers in an appealing and educational format.

**Data visualization** is visual communication of data; it involves the creation and study of art in pictorial, graphical or audio format to share data quickly and easily.

## **KEY CONCEPTS**

- Processing, analyzing and communicating scientific data can be achieved using art

## **FLORIDA STANDARDS**

[VA.912.C.2.1](#)

Examine and revise artwork throughout the art-making process to refine work and achieve artistic objective.

[VA.912.F.3.10](#)

Apply rules of convention to create purposeful design.

[VA.912.F.3.12](#)

Use digital equipment and peripheral devices to record, create, present, and/or share accurate visual images with others.

[VA.912.H.1.5](#)

Investigate the use of technology and media design to reflect creative trends in visual culture.

[VA.912.O.1.1](#)

Use the structural elements of art and the organizational principles of design in works of art to establish an interpretive and technical foundation for visual coherence.

[VA.912.O.2.3](#)

Investigate an idea in a coherent and focused manner to provide context in the visual arts.

[VA.912.S.2.2](#)

Focus on visual information and processes to complete the artistic concept.

[VA.912.S.2.3](#)

Demonstrate visual-thinking skills to process the challenges and execution of a creative endeavor.

[MAFS.912.S-IC.2.6](#)

Evaluate reports based on data.

[SC.912.N.1.3](#)

Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented.

[LAFS.K12.SL.2.5](#)

Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

## MATERIALS

- Any medium you wish to utilize to create data art!

## PROCEDURE

1. Watch [Kilroy Academy Intro 101: The Kilroy Network](#) and learn how to navigate ORCA's Kilroy Public Map Display and Database.
2. Visit ORCA's Kilroy Public Map Display to access water temperature data: [ORCA Kilroy Data](#).
2. Explore water temperature data from varying Kilroy locations and decide which temperature data set to convey through data art.
3. Click 'Plot Historical Data' for the selected Kilroy and use the data set to create data art.
4. Choose how to convey temperature data, either through visual or audio form, or a combination of the two.
5. Create!

## ADDITIONAL RESOURCES

Introduction to the art of data visualization:

<https://www.youtube.com/watch?v=AdSZJzb-aX8>

Examples of Data Art:

Transforming scientific data into art: <http://iq.intel.com/turning-data-visualization-art-7-artists-using-data-muse/>

Music and art from solar data: <http://solar-center.stanford.edu/art/lausten.html>

NASA turns atmospheric data from the sun into abstract art:

<https://www.youtube.com/watch?v=ATD1yYkX8UI>

Music created from algorithmic data generated by professional tennis matches:  
<https://soundcloud.com/ibm>

Translating science data into art:  
<http://www.nathaliemiebach.com/>

Beautiful Maps Show the World's Oceans in Motion:  
<http://www.weather.com/science/weather-explainers/news/ocean-currents-eddies-temperature-images>

A song that represents a ride on a New York subway train:  
<https://datadrivendj.com/tracks/subway>

\*Note the added appreciation and understanding resulting from the simple animation that accompanies this music.

A wonderful web site full of examples of "data art":  
<http://flowingdata.com/category/visualization/artistic-visualization/>

Your life in jellybeans: <http://flowingdata.com/2013/11/27/your-life-in-jellybeans/>

The beauty of mathematics: <http://flowingdata.com/2013/10/28/beauty-of-mathematics/>

A wonderful interactive that conveys the true size of cells and the building blocks that make them: <http://learn.genetics.utah.edu/content/cells/scale/>

Living Data Art Exhibition  
<http://www.livingdata.net.au/content/DataExchange/DataExchange.php>

Lynchpin Art & Ocean Science Collaborations  
<http://www.lynchpin.org.au/>

Tools for Data Visualization  
<http://selection.datavisualization.ch/>

TED-Ed Visualizing Data Series  
<http://ed.ted.com/series/?series=visualizing-data>

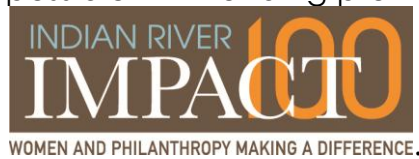
Interactive global weather visualization tool:  
<http://earth.nullschool.net/>



## ACKNOWLEDGEMENTS

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